

# **GAS TRANSFER ENERGY RECOVERY AND EFFERVESCENCE PREVENTION APPARATUS AND METHOD**

## **Abstract of the Disclosure**

5           A gas transfer system and method for dissolving at least one gas into a liquid. The system includes a gas transfer vessel also known as a reactor. A liquid inlet feed is connected to the reactor for transferring the liquid into the reactor. A gas inlet is connected to the reactor for feeding the gas into the reactor. An outlet is connected to the reactor for transferring the liquid with at least some of the gas therein away from the reactor. The system also includes a feed  
10   pump connected to the inlet feed to pressurize the contents of the inlet feed and the reactor, and a regenerative turbine connected to the feed pump and to the outlet. The various embodiments of the gas transfer system use pressurization in the gas transfer vessel to enhance gas transfer therein, minimize the net energy consumption, and retain highly supersaturated dissolved gas in solution. Some embodiments further help to reduce effervescence loss. The method of the  
15   present invention utilizes the system of the present invention and operates the feed pump and regenerative turbine to accomplish these advantages.